6 PROCEDURES

6.1 PROGRAM DESCRIPTION

The Reduced Gravity Program, operated by the National Aeronautics and Space Administration (NASA), Lyndon B. Johnson Space Center (JSC) in Houston, Texas, provides a "weightless" environment, similar to the environment of space flight, for test and training purposes on a cost reimbursable basis.

The reduced gravity environment is obtained by flying a specially modified Boeing KC-135A turbo jet transport through a series of parabolic maneuvers which result in short periods of less than one "g" acceleration. The lengths of these reduced gravity periods depend on the "g" level required for the specific test. Listed below are typical lengths for various maneuvers:

Negative-g to -1/10 max		15 seconds
Zero-g	0-g	23 seconds
Lunar-g	1/6-g	30 seconds
Martian-g	1/3-g	40 seconds

These maneuvers may be flown consecutively, roller-coaster fashion, or separated by enough time to alter the test setup. Each parabola is initiated with a 1.8-g pull-up and terminated with up to a 1.8-g pull-out. A normal mission duration is two to three hours, consisting of a maximum of 40 parabolic maneuvers. Flights originate and terminate at Ellington Field, Houston, Texas. Changes to the normal mission profile can be made to ensure more efficient testing operations. Requests for operations away from Ellington Field will be individually considered on the basis of benefit to NASA, fiscal soundness, scientific merit, airspace accessibility, and overall Reduced Gravity Program schedule impact.

The KC-135A aircraft test area is equipped with electrical power, compressed gas sources, overboard vent systems and photo lights. (See Section 6.3 for detailed description of the aircraft.) NASA JSC will provide photographers for documentary still photography and video coverage as well as S-band video down-link with two-way audio capability. Work space is available on the ground for buildup and checkout of test equipment to ensure its operation before installation in the airplane.